CRITERIA FOR LITHIUM IRON PHOSPHATE BATTERY PROCUREMENT

The requirement is for a bank of batteries that will supply a minimum of 97Amps per hour for three hours at a nominal voltage of 28.8VDC. The system will come complete with a built in, and attached Battery Management System (BMS) for charging, isolation and monitoring of the complete battery bank system which will provide an RS 232 port for communication with customer equipment. The bank shall be delivered for direct mounting and installation within a 19" equipment rack.
The following is the minimum criteria for procurement of a Lithium Iron Phosphate Battery System.

BATTERY ELECTRICAL REQUIREMENTS:

Nominal Voltage of Battery Bank System: 28.8 VDC

Total Minimum Available Bank Current for 3 hour Dissipation: 291Amps

Maximum Single Cell Battery Self Discharge Rate: Less than 2mv / month

Minimum Operating Temperature Range: -30˚ C to +60˚C

Cycle Life @ 20˚ C – 100% DOD: 500 cycles to capacity > 80% nominal capacity.

Nominal Single Cell Battery Voltage in Bank: 3.2VDC

Maximum Single Cell Charge Voltage: 3.8VDC

Maximum Single Cell Lower Voltage Discharge Limit : 2VDC

Nominal Single Cell Operating Voltage Range: 2.5VDC – 3.2VDC

Battery Bank Discharge Levels: Nominal peak discharge – 100Amps per hour
Maximum Pulse discharge – 200amps

BATTERY MANAGEMENT SYSTEM REQUIREMENTS (BMS) REQUIREMENTS:

BMS monitors and controls each cell separately.

Isolate single cells that are not charging at the same rate as other cells or that fail.

RS 232 Communication Port required for customer equipment connection and control / monitoring of BMS / battery information.

At a minimum the BMS is to supply to the RS 232 port each cells voltage, state of charge (SOC), state of health (SOH), depth of discharge (DOD), temperature and warning on over/under voltage and discharge limits.

BATTERY BANK MECHANICAL / CONNECTION REQUIREMENTS:

Integrated battery bank and BMS shall be mounted within a metal chassis(s) for direct installation into a 19" equipment rack.

Battery/BMS mounting chassis front panel(s) shall not exceed 19" or 483mm in width and 25" or 635mm in depth.

Battery/BMS mounting chassis / hardware shall not exceed a maximum height of 42" in total.

Each Battery/BMS chassis(s) shall have chassis slides for rack installation.

Each battery and BMS shall be firmly mounted and restrained with the chassis as not to move if the chassis if struck.

An RS 232 connector shall be mounted at the rear of the master chassis for connection to and communication with the customer equipment.

Provide a firmly mounted bus connection prominent at the rear of the appropriate chassis (equivalent location) for mating with the charger bus cables for. Size appropriately, anticipated charge current to be 100Amps.

Provide a firmly mounted bus connection prominent at the rear of the master chassis (equivalent location) for mating with customer bus cables for tapping to the 28.8VDC. Bus connection should be sized for 200Amps.

Provide a firmly mounted bus connection prominent at the rear of a sub chassis (equivalent location) for mating with customer bus cable for tapping to the 22.4VDC nominal voltage level.
Bus connection should be sized for 100Amps (current flow not anticipated at this level). [This connection defined as low tap by the customer and acts as a system trigger for immediate switchover to full battery tap at 28.8VDC]

Power bus cables between battery chassis(s) shall be provided and sized to the battery bank electrical requirements that are listed above.